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NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

LEASE VS. PURCHASE IN DEFENSE ACQUISITION

by

Carlton L. Hensley
Archie L. Tinjum

December 2008

Thesis Advisor:
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Lawrence R. Jones
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LEASE VS. PURCHASE IN DEFENSE ACQUISITION

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ABSTRACT

With declining budgets and consolidation in the defense industry, should competition between prime and sub-prime contractors be fostered through innovative lease arrangements, similar to the Navy's TAKX (Maritime Pre-positioning Force MPF) solution of the early 1980s? This thesis will attempt to answer the following questions – To what extent do current financial and managerial policies affect leasing and would changing these policies benefit both parties? Are there any benefits to leasing versus purchasing? Could leasing help the DoD control its budget? We will attempt to address the potential legislative action required to make long-term capital lease options palatable to both investors and DoD while allowing for continued congressional oversight of the procurement process. This research draws upon a multitude of papers, documents and other resources to deliver an acceptable answer to our question. The research presented will also attempt to identify where and why leasing can be a viable option to the acquisition process. The research will also review an example where leasing has proven its effectiveness and continues to be an effective alternative to full up-front procurement in the acquisition process. That process, however, was started and completed under earlier rules governing the lease of capital assets.

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I. INTRODUCTION

A. BACKGROUND

The United States Department of Defense (DoD) has relied heavily on full up-front procurement to finance its acquisition of military equipment since its inception. Over the past 20 years, the budget, specifically the defense budget, has come under far greater scrutiny. This scrutiny has resulted in additional legislative controls and monitoring on how the department spends its money. Gone are the days of the Reagan build-up where, intent on outspending the soviets in a great arms race, the DoD was allowed to purchase military equipment on grand scales for fear of the Russian hordes. Nor is the DoD planning on large-scale battles with other great-state actors and winning those battles by overwhelming opposing belligerents with superior high-tech equipment. Because of this, the military has become much more serious about how it spends its money and ensuring that they get the best equipment at the best price. All while maintaining itself within budget.

Now, faced with these continued budgetary pressures, decreasing purchasing power, and the increasing costs of specialized equipment to satisfy requirements of mobility and lethality, those in the acquisition process realize that in order to maximize value to the American taxpayer they need to change how money is spent. The lease vs. buy question has been around for a number of years and the DoD prefers to own its equipment outright. But due to rising acquisition costs and the difficulty of maintaining maintenance contracts, it might be more beneficial to lease. Currently, purchasing is still the main avenue for acquiring equipment, but there needs to be another option to keep our fighting forces ahead of those who would do us harm in both mobility and lethality.

Lease arrangements could allow shipyards, airplane manufacturers, etc., to keep costs down by fixing production quantities earlier in the process, spreading the research and development costs over greater quantities of finished

goods, and reducing the development cycle from five to ten years to two years. All while continuing to supply the requisite number of assets for force reconstitution and modernization. These are contemporary issues that will help in analyzing the questions this thesis attempts to answer, and why it might be advantageous to keep the industrial base working at full capacity through a lease arrangement.

B. RESEARCH

This research draws upon a multitude of papers, documents and other resources to deliver an acceptable answer to our questions. The research presented will also attempt to identify where and why leasing can be a viable option to the full up-front acquisition process. The research will also review an example where leasing has proven its effectiveness and continues to be an effective alternative to full up-front procurement in the acquisition process. That process, however, was started and completed under earlier rules governing the lease of capital assets.

1. Research Questions:

- To what extent do current financial and managerial policies affect leasing and would changing these policies benefit both parties?
- Are there any benefits to leasing versus buying?
- Will leasing help the DoD control their budget?

C. BENEFIT OF THESIS

This thesis will provide a basic analysis of the current acquisition process as it relates to the lease versus purchase decision while providing the advantages and disadvantages of both options. Each option does have tangible benefits and specific drawbacks but, because of the current economic situation, the DoD budget bears the brunt of the drawbacks and realizes few of the benefits. This, in turn, effects how the military manages its acquisition program to stay ahead of those who wish to do harm to the United States and its allies.

Furthermore, this thesis will attempt to show that leasing does have its place in the acquisition of military assets and that leasing should be assessed as an alternative more often than is current practice because of its ability to save money, both in the short and long term, which leads to additional recapitalization for more pressing issues.

The purpose of this thesis is to provide a broad-spectrum look into the acquisition process with regard to the lease versus purchase decision. It is not intended to show that leasing is or will be the most effective alternative in any or every case, but rather that because of its potential, leasing should not be discounted simply because of current legislation enacted as intentional impediments to the lease option for defense acquisition. This analysis will contribute to greater awareness of leasing as an alternative to full up-front purchase by the acquisition force. This heightened awareness will enable the acquisition workforce to achieve the noble goal of maintaining the highest standard of readiness with the most up to date military equipment for the men and women of the United States Armed Forces.

D. THESIS SCOPE

The scope of this thesis is on the lease versus purchase decision and how capital-financing decisions could be made within the acquisition process. Specific budgetary requirements and fiscal policy in relation to leasing and purchasing are not addressed at length, but small portions of the process will be reviewed as reference.

E. METHODOLOGY

This thesis reviews the basic process of the lease, purchase decision and specific rules governing both leasing and purchasing. It also attempts to show the advantages and disadvantages of leasing and purchasing while attempting to show that each has its place in the acquisition process. It will briefly showcase an example of a successful acquisition program where leasing did work,

produced significant savings, and enabled the DoD to invest in higher priority programs. There is still disagreement at the highest levels as to how much actual savings there was and where those savings were realized. The resulting data was the product of in-depth research into multiple documents and other statistical methods.

F. ORGANIZATION OF THESIS

The research presented in this thesis is presented as follows:

Chapter I, Introduction, discusses the benefit, scope and methodology of this thesis while establishing context in the basic process of leasing and purchasing. It further discusses why leasing should not be ignored as an alternative to full up-front purchase in defense acquisition. Rather, leasing should be viewed as a potentially viable option.

Chapter II, Literature Review, provides a summary of all documents that reviewed to gain the information necessary to present a thorough and informative thesis.

Chapter III, Budget Effects on Acquisition, provides background information on the annual defense appropriation process as it relates to budgetary effects on the acquisition process. It also briefly discusses the competition that comes out of the acquisition process as well as the conflicting policies that arise because of this competition.

Chapter IV, What is Leasing and Purchasing, briefly describes the two options in the acquisition process, leasing and purchasing. It also briefly discusses reasons why purchasing has historically been the popular choice in defense acquisition and articulates some questions that should be asked when deciding between leasing and purchasing.

Chapter V, Advantages and Disadvantages of Leasing and Purchasing, discusses some of the advantages and disadvantages to both leasing and purchasing. This chapter is not collectively exhaustive in that it only covers those aspects that are considered relevant to this thesis.

Chapter VI, Rules and Restrictions for Leasing for Cost Effectiveness, briefly discusses specific legislation and budget policies that are meant to guide the lease analysis process. It will also provide an analysis of these restrictions and what the government expects to see when the lease option is desired over the full up-front purchase of defense assets. It will also discuss cost-benefit analysis in relation to leasing and purchasing. This chapter will not delve into how to conduct a cost-benefit analysis or the process associated with leasing and purchasing.

Chapter VII, Example of Lease/Purchase Decisions, gives an example of a successful lease arrangement with civilian investors for the acquisition of non-combat related defense assets. It will briefly discuss the Military Sealift Command program, its background, and why the Navy chose to lease rather than fund the full up-front procurement of maritime prepositioning ships. It will also provide a short analysis of why it worked with supporting information.

Chapter VIII, Conclusions, provides the final analysis based on related research and interpretation of others' responses. It will answer each question in turn with specific conclusions.

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II. LITERATURE REVIEW

A. INTRODUCTION

This chapter presents background information on a number of subject areas to build a framework upon which to discuss topics raised throughout the remainder of this thesis. Initially it explains capital decision-making as it relates to financing and rates of return. The final section presents previous work related to the subject of this thesis as a basis for discussion regarding the efficacy of leasing as an alternative method of financing for defense acquisition. Additional background on defense budgeting and financial management was researched by the authors as necessary to understand where the issue of lease versus purchase fits into the Planning, Programming, Budgeting, Execution system (PPBES) and the federal government budget process. Understanding PPBES and federal budgeting, especially how Congress budgets, was required for this project but is not summarized here. For background on this area see relevant texts including L. R. Jones and J. L. McCaffery (2008).

B. CAPITAL DECISION MAKING

1. Office of Management and Budget (OMB) Circular No. A-11 (2008): Preparation, Submission, and Execution of the Budget

a. Appendix A – Scorekeeping Guidelines

The term “Budget scorekeeping” refers to the process of estimating the budgetary effects of legislation, both previously enacted and pending, on the limits set in the budget resolution or legislation. Scorekeeping uses several metrics to compare these legislative effects such as budget authority, receipts, outlays, the surplus or deficit, and the public debt limit.

Appendix A outlines the budget scorekeeping guidelines used by the House and Senate Budget Committees, the Congressional Budget Office, and the Office of Management and Budget (the "scorekeepers") in measuring compliance with the Congressional Budget Act of 1974 (CBA), as amended, and GRH, as amended. The purpose of the guidelines is to ensure that the scorekeepers measure the effects of legislation on the deficit consistent with established scorekeeping conventions and with the specific requirements in those Acts regarding discretionary spending, direct spending, and receipts. ((OMB) Circular No. A-11 (2008))

The scorekeeping guidelines further delineate how purchases are to be scored based on their nature. The following excerpt defines how each type of purchase (purchase, lease-purchase, capital lease, and operating lease) is to be scored.

For lease-purchases and capital leases, budget authority will be scored against the legislation in the year in which the budget authority is first made available in the amount of the estimated net present value of the government's total estimated legal obligations over the life of the contract, except for imputed interest costs calculated at Treasury rates for marketable debt instruments of similar maturity to the lease period and identifiable annual operating expenses that would be paid by the government as owner (such as utilities, maintenance, and insurance). Property taxes will not be considered to be an operating cost. Imputed interest costs will be classified as mandatory and will not be scored against the legislation or for current level but will count for other purposes.

For operating leases, budget authority will be scored against the legislation in the year in which the budget authority is first made available in the amount necessary to cover the government's legal obligations. The amount scored will include the estimated total payments expected to arise under the full term of a lease contract or, if the contract will include a cancellation clause, an amount sufficient to cover the lease payments for the first fiscal year during which the contract is in effect, plus an amount sufficient to cover the costs associated with cancellation of the contract. For funds that are self-insuring under existing authority, only budget authority to cover the annual lease payment is required to be scored.

Outlays for a lease-purchase in which the Federal government assumes substantial risk (for example, through an explicit government guarantee of third party financing) will be spread across the period during which the contractor constructs, manufactures, or purchases the asset. Outlays for an operating lease, a capital lease, or a lease-purchase in which the private sector retains substantial risk will be spread across the lease period. In all cases, the total amount of outlays scored over time against legislation will equal the amount of budget authority scored against that legislation.

No special rules apply to scoring purchases of assets (whether the asset is existing or is to be manufactured or constructed). Budget authority is scored in the year in which the authority to purchase is first made available in the amount of the government's estimated legal obligations. Outlays scored will equal the estimated disbursements by the government based on the particular purchase arrangement, and over time will equal the amount of budget authority scored against that legislation.

Existing contracts will not be rescored. ((OMB) Circular No. A-11 (2008))

b. Appendix B – Budgetary Treatment of Lease-Purchases and Leases of Capital Assets

This appendix provides instructions on the budgetary treatment of lease-purchases and leases of capital assets consistent with the scorekeeping rule developed by the executive and legislative branches in connection with the Budget Enforcement Act of 1990 (BEA), as revised pursuant to the Balanced Budget Act of 1997 (see Appendix A). The scorekeeping rule focuses on leases and lease-purchases specifically authorized by law. However, these requirements apply to all lease-purchase arrangements and capital leases, including those arrangements that agencies may enter into under existing general legal authorities and arrangements that are financed through the Federal Financing Bank. The only exception is that leases between Federal agencies generally will not be treated this way if the lessor recorded the full cost of the asset when it was acquired ((OMB) Circular No. A-11 (2008)).

Also included in this appendix is a useful set of definitions that help the reader to differentiate between a lease-purchase, an operating lease and a capital lease. The definitions in Appendix B go further in establishing some defining concepts that help govern the treatment of purchases in the budget. The following definitions are germane:

Lease-purchase means a type of lease in which ownership of the asset is transferred to the government at or shortly after the end of the lease term. Such a lease may or may not contain a bargain-price purchase option.

Capital lease means any lease other than a lease-purchase that does not meet the criteria of an operating lease.

Operating lease means a lease that meets all the criteria listed below. If the criteria are not met, the lease will be considered to be a capital lease or a lease-purchase, as appropriate. Multi-year service contracts (e.g., grounds maintenance) and multi-year purchase contracts for expendable commodities (e.g., aspirin) will be considered to be operating leases. Agencies should consult with OMB in cases where a service contract requires a private contractor to construct or acquire a capital asset solely or primarily to provide the service to the government.

- Ownership of the asset remains with the leaser during the term of the lease and is not transferred to the government at or shortly after the end of the lease term.
- The lease does not contain a bargain-price purchase option.
- The lease term does not exceed 75 percent of the estimated economic life of the asset.
- The present value of the minimum lease payments over the life of the lease does not exceed 90 percent of the fair market value of the asset at the beginning of the lease term.
- The asset is a general purpose asset rather than being for a special purpose of the government and is not built to the unique specification of the government as lessee.
- There is a private sector market for the asset.

The following guidelines will be used in distinguishing between operating leases, capital leases, and lease purchases. They should be used in calculating the term of the lease and the value of the minimum lease payments:

- *Estimate of fair market value.* In the case of real property, the fair market value should be based on current market appraisals. If no asset exists, the fair market value of the proposed asset should be based on the government's estimate of the private developer's cost to construct the leased facility. The estimate should only include the costs the government would normally pay the private sector for such a facility. These costs include the total direct and indirect costs of constructing the facility, including land purchase, design, site improvements, and management costs. Fair market value should not include the value of features or enhancements that were built or added for the government's unique needs or special purposes or features or enhancements that will be paid for by the government in lump sum. If the government proposes to lease only a portion of a facility, then the estimate of fair market value should be adjusted accordingly to reflect the portion that will be leased by the government.
- *Special features or enhancements.* Assets that have special features or enhancements that were built or added for the government's unique needs or special purposes need to be evaluated on a case-by-case basis to ascertain whether they can be considered to be general purpose assets. If the asset is considered to be a general purpose asset, then, as a general rule, such special features or enhancements should be financed upfront, separate from the lease.
- *Projects on government land.* If the project is constructed or located on government land, it will be presumed to be for a special purpose of the government.
- *Renewal and purchase options.* If the lease agreement contains an option to renew that can be exercised without additional legislation, it will be presumed that the option will be exercised. If the lease agreement contains an option to purchase at less than fair market value (at the time the option is to be exercised), and the option can be exercised without additional legislation, it will be presumed that the option will be exercised.

- *Cancellation clauses.* It will be presumed that the lease will run for the full term of the contract, and the minimum lease payments will be calculated on the basis of the lease payments that will be made over the full term of the lease (including options to renew).
- *Lease-backs from public/private partnerships.* If an agency leases from a public/private partnership that has substantial private participation, the lease will be treated as a capital lease. The term "public/private partnership" includes special purpose entities for which the government is a beneficiary. Substantial private participation means (1) the non-Federal partner has a majority ownership share of the partnership and its revenues; (2) the non-Federal partner has contributed at least 20 percent of the total value of the assets owned by the partnership; and (3) the government has not provided indirect guarantees of the project, such as a rental guarantee or a requirement to pay higher rent if it reduces its use of space. Total value includes the value of assets contributed by the government (but not the value of land) and all improvements made to the asset. Contributions by the non-Federal partner of cash, real assets, and loans for which the non-Federal partner is responsible for repayment will count towards meeting the 20 percent threshold. Direct loans from the government or guarantees by the government of loans made to the non-Federal partner or to the partnership will not count towards the 20 percent threshold.

If a public/private partnership fails to meet the test of substantial private participation, the partnership will be considered governmental for purposes of the budget, and the lease-back will be scored against the agency that enters into the partnership.

If the government ground-leases property to a non-Federal party and subsequently leases back the improvements, the lease will not be considered a lease-back from a public/private partnership, as long as the lessor is a totally non-Federal entity. Such lease-backs may be treated as operating leases if they meet the criteria for an operating lease.

- *Bargain-price purchase option.* A bargain-price purchase option is a provision allowing the government to purchase the leased property for a price that is lower than the expected fair market value of the property at the date the option can be exercised. The purchase price includes the value of any rebates or income to the agency or government resulting from its purchase of the asset.

- *Property taxes.* Property taxes, along with other operating expenses, will be excluded from the lease payments for purposes of comparing the present value of the minimum lease payments with the fair market value of the asset. (Note: Property taxes will be included in the calculation of the net present value of the lease payments for purposes of scoring budget authority under the BEA. See section 2 (b) above).
- *Interest rates.* The present value of the minimum lease payments will be calculated on the basis of Treasury rates for marketable debt instruments of similar maturity to the lease term (see section 4).

Risk means the level of private-sector risk. Lease-purchase agreements are scored as with or without substantial private risk depending on the level of private-sector risk. Substantial private risk means the absence of substantial government risk. Risk is defined in terms of how governmental in nature the project is. That is, if the project is less governmental in nature, the private sector risk is considered to be higher.

The following types of illustrative criteria indicate ways in which the project is less governmental:

- There is no provision of government financing and no explicit government guarantee of third-party financing.
- Risks incident to ownership of the asset (e.g., financial responsibility for destruction or loss of the asset) remain with the lessor unless the government was at fault for such losses.
- The asset is a general purpose asset rather than being for a special purpose of the government and is not built to the unique specification of the government as lessee.
- There is a private-sector market for the asset.
- The project is not constructed on government land.

Imputed interest cost means the financing costs that Treasury would have incurred if it had sold debt to the public equal to the total project cost. The difference between the total estimated legal obligations (excluding obligations for annual operating expenses as described in section 2(b)) and their estimated net present value

represents imputed interest costs. Imputed interest costs will be calculated at Treasury rates for marketable debt instruments of similar maturity to the lease term on the date the contract is signed. These costs will be considered mandatory under the BEA and will be shown in the same function as interest on agency debt, that is, in the function that provided the obligation authority to enter into the contract.

Differential cost of financing means the total annual interest payments on any debt sold to the public less the interest payments that would have been made on the same amount of debt at the Treasury rate (i.e., less the imputed interest costs). Simply stated, this corresponds to any interest above Treasury's interest rate.

Asset cost means the present value of the agency's minimum lease payments discounted from the date of the first payment (or the beginning of the lease term, whichever is earlier) using the Treasury interest rate for marketable debt instruments of similar maturity to the lease term on the date the contract is signed and excluding obligations for identifiable annual operating expenses as described in section 2(b). Asset cost corresponds to the total construction or acquisition costs, plus property taxes and any interest above Treasury's cost of financing (i.e., the differential cost of financing). See section 4 for more detailed explanation and the treatment of multiple deliveries ((OMB) Circular No. A-11 (2008)).

c. OMB Circular No. A-94 October 29, 1992: Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs

OMB Circular No. A-94 provides guidance to promote the efficient allocation of finite resources in the Federal Government. It advocates sound cost-benefit and cost-effectiveness analyses for decision-makers and includes specific discount rates for determining the net present value of Federal programs where benefits or costs are distributed over time. This set of guidelines also establishes the procedures for cost-effectiveness analysis related to lease versus purchase decisions, "Lease-purchase analysis is only appropriate after a decision has been made to acquire the services of an asset. Guidance for lease-purchase analysis is provided in Section 8.c.(2) and Section 13" (Section 2).

Section 8.c.(2) states that for lease-purchase analysis –

Analyses of nominal lease payments should use the nominal Treasury borrowing rate on marketable securities of comparable maturity to the period of analysis. Nominal Treasury borrowing rates should be taken from the economic assumptions for the budget. A table of discount rates based on these assumptions is presented in Appendix C of this Circular, which is updated annually. (Constant dollar lease-purchase analyses should use the real Treasury borrowing rate, described in the preceding paragraph.) (OMB Circular No. A–94 October 29, 1992).

Section 13 provides amplifying guidance on the cost-effectiveness analysis of leasing versus purchasing the use of an asset. It specifically requires that a separate analysis regarding the requirement to acquire the service be conducted prior to applying the special guidance in this section. Section 13 is included in its entirety:

Special Guidance for Lease-Purchase Analysis. The special guidance in this section does not apply to the decision to acquire the use of an asset. In deciding that, the agency should conduct a benefit-cost analysis, if possible. Only after the decision to acquire the services of an asset has been made is there a need to analyze the decision whether to lease or purchase.

- a. **Coverage.** The Circular applies only when both of the following tests of applicability are satisfied:
 1. The lease-purchase analysis concerns a capital asset, (including durable goods, equipment, buildings, facilities, installations, or land) which:
 - a. Is leased to the Federal Government for a term of three or more years; or,
 - b. Is new, with an economic life of less than three years, and leased to the Federal Government for a term of 75 percent or more of the economic life of the asset; or,
 - c. Is built for the express purpose of being leased to the Federal Government; or,
 - d. Is leased to the Federal Government and clearly has no alternative commercial use (e.g., a special-purpose government installation).
 2. The lease-purchase analysis concerns a capital asset or a group of related assets whose total fair market value exceeds \$1 million.

- b. **Required Justification for Leases.** All leases of capital assets must be justified as preferable to direct government purchase and ownership. This can be done in one of three ways:
1. By conducting a separate lease-purchase analysis. This is the only acceptable method for major acquisitions. A lease represents a major acquisition if:
 - a. The acquisition represents a separate line-item in the agency's budget;
 - b. The agency or OMB determines the acquisition is a major one; or
 - c. The total purchase price of the asset or group of assets to be leased would exceed \$500 million.
 2. By conducting periodic lease-purchase analyses of recurrent decisions to lease similar assets used for the same general purpose. Such analyses would apply to the entire class of assets. OMB approval should be sought in determining the scope of any such generic analysis.
 3. By adopting a formal policy for smaller leases and submitting that policy to the OMB for approval. Following such a policy should generally result in the same lease-purchase decisions as would conducting separate lease-purchase analyses. Before adopting the policy, it should be demonstrated that:
 - a. The leases in question would generally result in substantial savings to the government that could not be realized on a purchase;
 - b. The leases are so small or so short-term as to make separate lease-purchase analysis impractical; and
 - c. Leases of different types are scored consistently with the instructions in Appendices B and C of OMB Circular No. A-11.
- c. **Analytical Requirements and Definitions.** Whenever a Federal agency needs to acquire the use of a capital asset, it should do so in the way that is least expensive for the government as a whole.
1. **Life-Cycle Cost.** Lease-purchase analyses should compare the net discounted present value of the life-cycle cost of leasing with the full costs of buying or constructing an identical asset. The full costs of buying include the asset's purchase price plus the net discounted

present value of any relevant ancillary services connected with the purchase. (Guidance on the discount rate to use for lease-purchase analysis is in Section 8.c.)

2. **Economic Life.** For purposes of lease-purchase analysis, the economic life of an asset is its remaining or productive lifetime. It begins when the asset is acquired and ends when the asset is retired from service. The economic life is frequently not the same as the useful life for tax purposes.
3. **Purchase Price.** The purchase price of the asset for purposes of lease-purchase analysis is its fair market value, defined as the price a willing buyer could reasonably expect to pay a willing seller in a competitive market to acquire the asset.
 - a. In the case of property that is already owned by the Federal Government or that has been donated or acquired by condemnation, an imputed purchase price should be estimated. (Guidance on making imputations is provided in Section 13.c.(6).)
 - b. If public land is used for the site of the asset, the imputed market value of the land should be added to the purchase price.
 - c. The asset's estimated residual value, as of the end of the period of analysis, should be subtracted from its purchase price. (Guidance on estimating residual value is provided in Section 13.c.(7).)
4. **Taxes.** In analyzing the cost of a lease, the normal payment of taxes on the lessor's income from the lease should not be subtracted from the lease costs since the normal payment of taxes will also be reflected in the purchase cost. The cost to the Treasury of special tax benefits, if any, associated with the lease should be added to the cost of the lease. Examples of such tax benefits might include highly accelerated depreciation allowances or tax-free financing.
5. **Ancillary Services.** If the terms of the lease include ancillary services provided by the lessor, the present value of the cost of obtaining these services separately should be added to the purchase price. Such costs may be excluded if they are estimated to be the same for both lease and purchase alternatives or too small to affect the comparison. Examples of ancillary services include:

- a. All costs associated with acquiring the property and preparing it for use, including construction, installation, site, design, and management costs.
 - b. Repair and improvement costs (if included in lease payments).
 - c. Operation and maintenance costs (if included in lease payments).
 - d. Imputed property taxes (excluding foreign property taxes on overseas acquisitions except where actually paid). The imputed taxes approximate the costs of providing municipal services such as water, sewage, and police and fire protection. (See Section (6) below.)
 - e. Imputed insurance premiums. (See Section (6) below.)
6. **Estimating Imputed Costs.** Certain costs associated with the Federal purchase of an asset may not involve a direct monetary payment. Some of these imputed costs may be estimated as follows.
- a. **Purchase Price.** An imputed purchase price for an asset that is already owned by the Federal Government or which has been acquired by donation or condemnation should be based on the fair market value of similar properties that have been traded on commercial markets in the same or similar localities. The same method should be followed in estimating the imputed value of any Federal land used as a site for the asset.
 - b. **Property Taxes.** Imputed property taxes may be estimated in two ways.
 - I. Determine the property tax rate and assessed (taxable) value for comparable property in the intended locality. If there is no basis on which to estimate future changes in tax rates or assessed values, the first- year tax rate and assessed value (inflation adjusted for each subsequent year) can be applied to all years. Multiply the assessed value by the tax rate to determine the annual imputation for property taxes.
 - II. As an alternative to step (i) above, obtain an estimate of the current local effective property tax rate from the Building Owners and Managers Association's Regional Exchange Reports. Multiply the fair market value of the government-owned property (inflation adjusted for each year) by the effective tax rate.

- c. **Insurance Premiums.** Determine local estimates of standard commercial coverage for similar property from the Building Owners and Managers Association's Regional Exchange Reports.
- 7. **Residual Value.** A property's residual value is an estimate of the price that the property could be sold for at the end of the period of the lease-purchase analysis, measured in discounted present value terms.
 - a. The recommended way to estimate residual value is to determine what similar, comparably aged property is currently selling for in commercial markets.
 - b. Alternatively, book estimates of the resale value of used property may be available from industry or government sources.
 - c. Assessed values of similar, comparably aged properties determined for property tax purposes may also be used.
- 8. **Renewal Options.** In determining the term of a lease, all renewal options shall be added to the initial lease period. (OMB Circular No. A-94 October 29, 1992)

2. Defense Acquisition University: Aircraft Leasing 101 – A Primer

The Defense Acquisition University produced a primer on aircraft leasing to demonstrate the challenges faced by government entities when attempting to resource assets through lease arrangements similar to those found in the commercial aircraft market. It makes the case for leasing in the commercial sector as one that benefits all participants in the endeavor. First, the lessor is able to realize significant tax benefits by depreciating the asset over the life of the lease rather than the life of the asset pursuant to current tax law. These benefits are passed on to the lessee in the form of lower operating costs, read lower asset capitalization costs, and reward both parties with advantages not otherwise available.

Second, the lessee is able to tap into cheaper financing through consolidation and global capital markets, manage cash flows such that day-to-

day operations fund the use of the asset over its useful life rather than financing the full cost of the asset up front, and enjoy significantly more flexibility in resourcing their fleet. This allows smaller companies to enter the market with significantly lower start-up capital requirements since lease arrangements generally require 3% down whereas full, up-front financing requirements can be as high as 30%. Furthermore, larger companies are able to explore cost saving measures such as downsizing aircraft or adding different aircraft configurations based on ever changing market conditions. The Federal Government is unable to take advantage of many of these benefits because of the rules established to control the use of public funds. The following summary of restrictive legislation is taken directly from the primer:

- **31 USC Sec 1301**

- Restricts use of funds to the specific appropriation purpose, (i.e., aircraft acquisition funds can not be used to support aircraft operations or Operation and Maintenance funds can not be used to acquire even the smallest equity interest in an aircraft.) This effectively eliminates the government's ability to enter into a lease arrangement on commercial terms.

- **31 USC Sec 1341**

- Limits the government's ability to enter into obligations without the liability fully funded at the time of obligation, including contingent liabilities. In leases, there are several contingent and other liabilities – future payments, termination liability, and indemnification – for which it is economical to fund only when the payment is actually due.

- **31 USC Sec 1347**

- Requires an Agency to spend an appropriation only for the specific purpose for which it is appropriated or authorized. It unduly limits the funding available to fulfill normal lease payment obligations.

- **31 USC Sec 1502**

- Similar to 31 USC Sec 1347 -- Restricts the term within which an appropriation may be used to pay for the 'bona fide' needs of the period for which they were appropriate. It unnecessarily restricts the source of funding available to meet lease payment obligations.

- **10 USC Sec 2401 (c) (1) and (2) and (f)**

- Restricts the ability of an Agency to obligate itself to certain contingent liabilities – i.e., termination and indemnification. These contingencies are essential requirements of a lease arrangement that are the lessor's responsibility (Aircraft Leasing 101).

C. LEASE AS AN ALTERNATIVE FORM OF FINANCING

San Miguel, Shank, and Summers concluded that, “With a different legislative context and regulatory climate, leasing could be made potentially viable again” (Conclusion). Their argument stems from an analysis of the Navy’s TAKX lease program in the early 1980s whereby the Navy, unable to secure full up-front funding for non-combat support ships, chose a lease arrangement to fulfill an operational necessity. TAKX refers to specialized cargo ships with roll-on/roll-off (RO/RO) and lift-on/lift-off (LO/LO) capability that provide up to a Marine brigade’s worth of equipment pre-positioned at strategic locations throughout the world. This TAKX capability grew out of earlier successful pre-positioning efforts in the Indian Ocean at Diego Garcia using older merchant ships (Page 3).

Their analysis begins with a short synopsis of historical lease arrangements within the Navy that includes examples dating back to World War II. Then the Navy contracted over 450 supply ships with merchant marine crews to support the war effort with further examples ranging from more than 200 ships during the Korean conflict to the T1 refueling tankers used during Vietnam (Page 2).

The foundation of the Navy’s decision to lease rather than purchase the 13 cargo ships representing the TAKX program stems not from a financing decision for an already approved program but from a “lease or do-without” decision (Page 4). In the early ‘80s, the Navy was growing its fleet to some 600 ships as the Reagan era buildup against the threat of Soviet expansion provided the necessary impetus for defense spending. This rapid expansion in combat

ships relegated non-combat ships to the wayside and Navy officials felt that defending non-combat support ships in the budget was untenable (Page 3).

Leasing historically has provided several potential benefits to both the leaser and the lessee that due to changing legislation are now somewhat subdued. One of the principal advantages to leasing in the commercial sector is the tax savings achievable by the owners of leased assets. At the time of the Navy's decision to lease MPS ships in support of the TAKX program, applicable tax code allowed accelerated depreciation of assets leased to non-profit entities to include the Federal Government. This accelerated depreciation allowed the owners of the 13 MPS ships to fully depreciate the value of the ships over five years rather than the 31.25 years, or 125 percent of the lease term, required today (Page 23).

The other tax related benefit cited by the authors is the Investment Tax Credit under which the private owners of the MPS ships could receive an immediate tax credit amounting to ten percent of the purchase price for qualifying assets (Page 11). Much of the argument over the cost-effectiveness of the Navy's TAKX program as it relates to the efficacy of the lease purchase question stems from these particular aspects of leasing. Specifically, the loss of tax revenue afforded to wealthy investors at the expense of the American tax-payer.

For DoD, Congress has erected several onerous hurdles that make lease financing for large programs particularly daunting. The defense appropriation act of 1984 detailed the requirements as follows:

- All DoD long-term leases must be specially authorized by law.
- A notice of intent to solicit such leases must be given to the appropriate committees in both houses of Congress.
- A detailed justification for lease versus purchase must be submitted to Congress and that justification must be approved by the OMB and Treasury.
- The OMB and Treasury must jointly issue guidelines as to when leasing may be appropriate (Page 17).

Further restrictions followed with additional legislation that eliminated much of the benefit to private investors. The Deficit Reduction Act of 1984 stipulated that assets leased to the Federal Government were no longer eligible for accelerated depreciation and the anti-deficiency act included provisions that mandate full up-front funding for the present value of all expected expenditures over the life of the lease to include early termination penalties (Page 17). The final nail came in the form of guidance on conducting cost-effectiveness analysis out of the Office of Management and Budget (OMB). OMB Circular A-94, which mandates the use of U.S. Treasury rates for discounting the present value of payments and benefits spread over a time, also restricts the use of tax revenue on payments to the owners in the computation of benefits accrued to the treasury (Page 18).

To specifically authorize the TAKX program and the leasing of 13 MPS required Congress to waive certain requirements under the anti-deficiency act. The defense appropriation act of 1985 authorized the Navy to encumber the Naval Industrial Fund (NIF) only for the portion of the lease occurring in the current fiscal year plus ten percent of the potential termination fees. Without this provision, the NIF would have been over-encumbered and the program infeasible (Page 17).

The authors posit that for leasing to be a viable alternative to full up-front financing in the twenty-first century, the legislation effectively precluding the use of leasing needs to be re-evaluated. Their argument follows:

Tax Deductibility of Depreciation Expense: The Economic Recovery Act of 1981 allowed companies to realize accelerated depreciation tax benefits over a very short time period. Under this Act, the ACRS allowed the owners of the MPS vessels to depreciate their ships using accelerated rates over a five-year period, even though the lease terms were 25 years. The present value of this depreciation tax shelter to the owners was over \$72 million per ship, a major component of the economic return. In 1984, the Deficit Reduction Act (P.L. 98-369) modified tax laws to disallow owners the use of ACRS for assets leased to tax-exempt entities, including the government. The Legislation also reduced

the impact of the tax benefits by lengthening the tax life for depreciation to a period equal to 125 percent of the lease term. While this Legislation was not retroactive, if the MPS vessels had been built after 1984, depreciation lives would have been 31.25 years. This 1984 Act discouraged leasing by reducing the tax benefits. But, the bigger blow was disallowing all depreciation deductions for leases to the government. If the military hopes to foster an environment where owners desire to lease to the military, Congress needs to re-institute the ability of lessors to take depreciation deductions—at least on a straight-line basis over the ACRS life of the assets.

NIF Encumbrance: The Balanced Budget and Emergency Deficit Control Act of 1985 (P.L. 99-177) required all DoD agencies to request up-front budget authority for the estimated full present value of all capital lease payments and termination provisions. One of the benefits of leasing in the commercial world is the ability to spread payments over the useful life. If a private-sector user of equipment were required to pay 100 percent of the lease before the equipment is used, there would be no reason to lease. The same concept applies to the government. If the government requires its agencies to obligate the sum of total payments for the first option period plus the termination value (which virtually equals the cost of the total lease) then it will never make financial sense to lease. In order to make leasing a viable option for the government, special legislation needs to be passed that frames leasing as an annual obligation, which does not encumber the NIF beyond one year.

Prior Approval: The *1984 Department of Defense Authorization Act* (P.L. 98-94) further restricted government leasing by requiring all long-term leases with substantial termination values to be specifically authorized by law. It further required Congressional notification prior to issuing a solicitation for leasing. Finally, the Act required a present-value cost comparison be submitted to Congress after OMB and Treasury Department review and evaluation. Given the known aversion to leasing in OMB and Treasury, this law effectively eliminates serious consideration of leasing. In essence, these three laws make it nearly impossible for leasing to be an effective alternative to purchasing. This forces DoD agencies to use the full procurement process for all asset acquisition. (Pages 23 and 24)

D. SUMMARY

Based on the literature reviewed in this chapter, it may be concluded that lease financing has distinct advantages in certain cases over the full up-front purchase method preferred by Congress. These advantages include lower up-front costs since the cost of procurement is extended over the useful life of the asset, greater responsiveness to the needs of the war fighter due to dramatically reduced development cycles, and greater value for the taxpayer when commercial off-the-shelf items fulfill an operational requirement without significant development to meet military specifications. Unfortunately, legislation designed specifically to guard against leases and the intentional or unintentional circumvention of the procurement process inhibit DoD's ability to provide the greatest value to the taxpayer in cases where leasing is appropriate.

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III. BUDGET EFFECTS ON ACQUISITION

A. INTRODUCTION

This chapter will provide information on the budgetary effects on acquisition process. It will also look into the budget process itself as it relates to the annual defense appropriation processes and the competition that it fosters because of where each contractor is located and who is affiliated with that contractor. A brief discussion of this competition and what pressure it places on the acquisition process along with conflicting policies that are created, which at times conflict with current acquisition policies.

B. DISCUSSION AND BACKGROUND

There are three principal budgetary effects on acquisition that bear mention; the budget process itself as it relates to the annual defense appropriation, the competition between must-pays and discretionary spending, and the policy objectives of differing administrations over the acquisition lifecycle. The first, the budget process as it relates to the annual defense appropriation is a complex cycle that involves every aspect of the legislative process and places significant pressure on a supposedly milestone driven system to adhere to a time-phased system. The second, competition between must-pays and discretionary spending relates to ever-growing entitlement spending as a percentage of revenues creating significant downward pressures on all discretionary spending which includes defense. Finally, each administration carries unique policy objectives that are often at odds with current acquisition plans and programs creating cyclical barriers for long-term sustainment of acquisition programs that may span multiple administrations. This chapter will address each in turn.

C. BUDGET PROCESS

Preparation of the annual defense budget for submission to Congress begins some 18 to 21 months before the start of the fiscal year in consideration. This preparation occurs within the framework of the Planning, Programming, Budgeting, and Execution System (PPBES) and concludes, for budgetary purposes, with the Program Objective Memorandum/Budget Estimate Submission (POM/BES). PPBES is comprised of four distinct yet overlapping phases and is executed in an on-year cycle (even years) and an off-year (odd years) cycle covering six plus one years. The first year is the current Execution year followed by two budget years and the out-years. In on-year cycles, the full budget process is conducted resulting in a BES, conversely during off-year cycles only minimal program changes, adjustments, and fact-of-life changes are entertained and the resultant output is a Budget Change Proposal (BCP).

1. Budget Planning Process

The planning process begins with the promulgation of the National Security Strategy (NSS) from the President to the Department of Defense (DoD) through the Secretary of Defense (SECDEF) and the Chairman of the Joint Chiefs of Staff (CJCS). The DoD reviews the NSS and produces the National Military Strategy and the National Defense Strategy (NMS and NDS respectively) as well as the Strategic Planning Guidance (SPG), Joint Programming Guidance (JPG), and the Quadrennial Defense Review (QDR).

The President is required under the Goldwater-Nichols Department of Defense Reorganization Act of 1986 to submit to the Congress an annual National Security Strategy with the annual budget. The NSS outlines in very broad terms the international foreign policy objectives of the sitting president. It addresses by statute the following:

- (1) The worldwide interests, goals, and objectives of the United States that are vital to the national security of the United States.*

(2) The foreign policy, worldwide commitments, and national defense capabilities of the United States necessary to deter aggression and to implement the national security strategy of the United States.

(3) The proposed short-term and long-term uses of the political, economic, military, and other elements of the national power of the United States to protect or promote the interests and achieve the goals and objectives referred to in paragraph (1).

(4) The adequacy of the capabilities of the United States to carry out the national security strategy of the United States, including an evaluation of the balance among the capabilities of all elements of the national power of the United States to support the implementation of the national security strategy.

(5) Such other information as may be necessary to help inform Congress on matters relating to the national security strategy of the United States.¹

In setting the National Security Strategy, the president signals to the defense department what interests are to be addressed in the National Defense Strategy. The National Defense Strategy (NDS) is produced roughly every four years and outlines the manner in which the Department of Defense will support the NSS. It provides overarching guidance for strategic planning at the campaign, force structure, and acquisition objective level for subordinate agencies and informs the National Military Strategy.²

The National Military Strategy further articulates the ways and means of achieving the goals established in previously addressed higher order documents. It is promulgated from the Chairman Joint Chiefs of Staff in accordance with US CODE: Title 10 Section 153 as a report to congress outlining the military's strategic plan consistent with of the National Security Strategy, the National Defense Strategy, and the Quadrennial Defense Review (QDR).³

¹ US CODE: Title 50, 404a (b).

² 2008 National Defense Strategy.

³ US CODE: Title 10, Section 153.

2. Budget Programming Process

Each of the services conducts programming within PPBES in accordance with resource-constrained guidance provided in the output from SECDEF and CJCS. Once the individual services have translated higher order planning guidance into actionable programs relating force structure, acquisition objectives, and infrastructure development to national objectives, the budget effort begins in earnest.

The budget process covers two years in application but only one year in execution. In on-years, the full budget process is carried to completion whereas in off-years the process is abbreviated and no new programs are added and only relatively small adjustments and fact-of-life changes are entertained. Once the BES/BCP is completed and submitted to OMB for inclusion in the Presidents Budget Submission (PRESBUD) to Congress.

Article I, section 9, clause 7 of The Constitution of the United States provides:

[n]o money shall be drawn from the Treasury, but in Consequence of Appropriations made by Law; and a regular Statement and account of Receipts and Expenditures of all public Money shall be published from time to time.

In effect, Congress holds power of the purse over the executive branch and exercises its power through the budget process.

3. Budget Execution Process

The congressional budget process was codified in The Congressional Budget and Impoundment Control Act of 1974 (the Budget Act) as a result of continuing efforts to reform and strengthen the role of Congress in the Budget process. Each year Congress is mandated by law to set the level of total spending, how total spending should be divided among the 20 major functions of government such as defense, agriculture, and health, and the revenues required

to cover said expenditures. These functional spending levels are the sum of discretionary and mandatory spending for each fiscal year covered by a budget resolution.

The congressional budget process results in various bills, including the defense appropriation, which are ultimately signed into law by the President in what is known as the Budget Cycle. The process is both iterative and collaborative in that both the House and Senate reconcile and ratify the budget as proposed by the president with varying degrees of change over the course of the budget cycle.

All members of the DoD, as well as the legislative and executive branches, program managers, and special industry groups are part of the acquisition process for defense. In this process, special attention must be paid to key officials such as program managers, and their political and budgetary influences. These individuals are the key ingredients to a successful program and whether that program continues to be funded each year depends on their successful defense of program requirements in the budget process.⁴

Analysis of the historical tables produced by the Congressional Budget Office reveals several disturbing trends. First, annual federal receipts have held relatively stable over the last 40 years averaging 18.3% of Gross Domestic Product (GDP) over time. Second, mandatory spending has increased by an average of 8.87% per year since 1968. With receipts averaging 18.3% since 1968 (Congressional Budget Office Historical Tables) and non-discretionary spending spiraling out of control to the tune of 11.9% of GDP in 2007 the downward pressure on discretionary spending is palpable. The following charts, based on data from the 2008 CBO report to Congress, demonstrate the fiscal impact static receipts and dynamic requirements have on the annual defense

⁴ Jones and McCaffery, 2008, 527.

appropriation. Given historical averages for federal receipts and the inability to control entitlement spending, shrinking discretionary, read defense, budgets are the reality of the future.

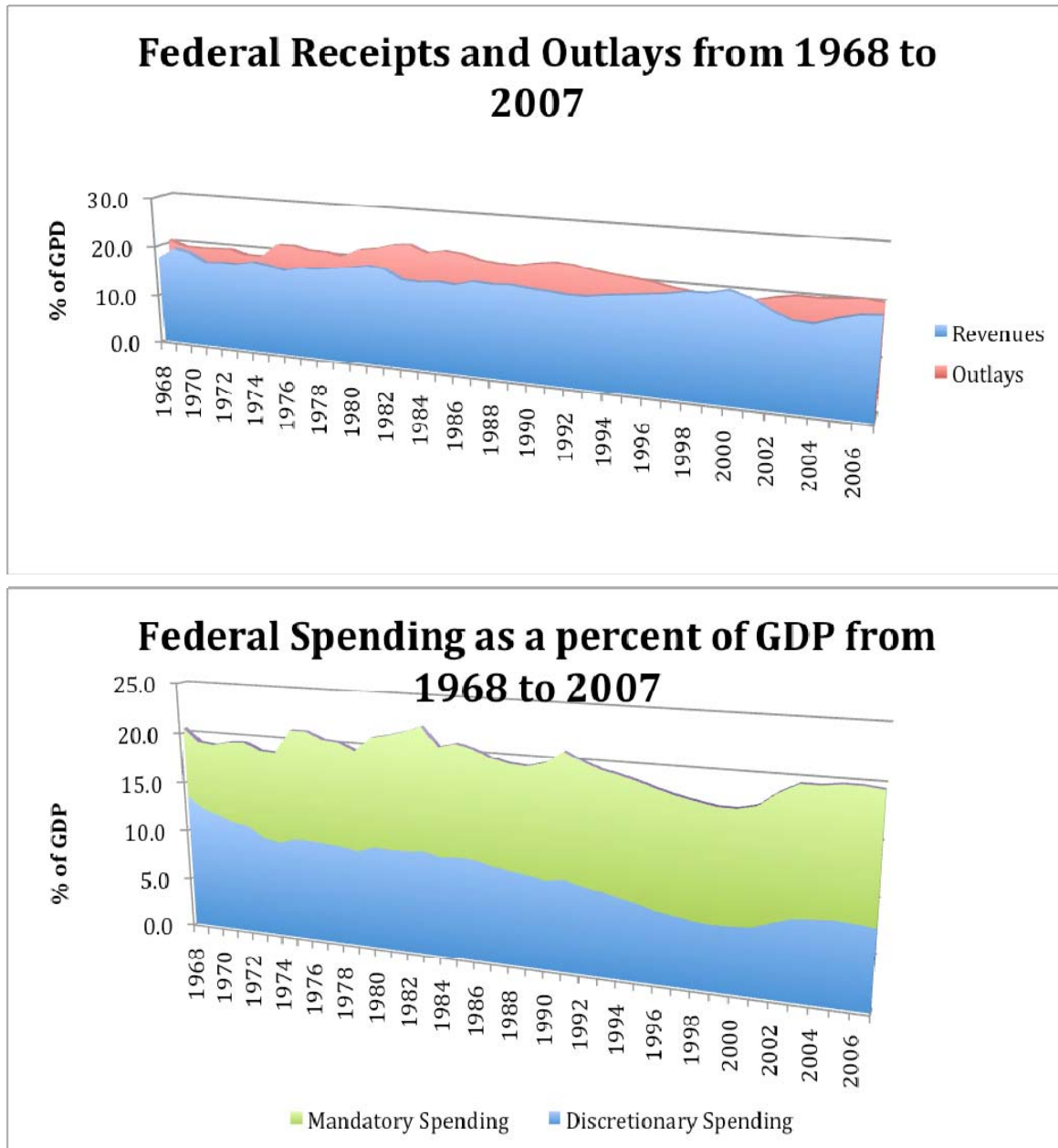


Figure 1. Compiled from data provided by the Congressional Budget Office

The budget is supposed to be a response to external threats as defined by the National Security Council, DoD planners, and the priorities of the President and Congress. Unfortunately, this does not always occur. Often, the budget is reactionary to unfolding events and passes too late to be effective. It is this budget review and approval process that severely affects the acquisition process and the speed at which new programs can be started and fielded or existing programs incremented up, down, or abandoned outright.

Because of the sheer size and complexity of the defense budget and its effect on specific constituencies, reaching an agreement on how much, where, and on what should be spent is always difficult in both the legislative and executive branches. This delay tends to result in longer-term swings upward and downward, which make the acquisition process of military assets harder to plan, incorrectly budgeted, and initiates delays in execution.⁵

Depending on the President's budget, maintaining the acquisition program baseline for any given program can be very tricky. Each new administration brings new policy objectives that may or may not mesh well with those of the previous administration. Furthermore, each time an administration adjusts its policy objectives, the acquisition programs that support the preceding initiatives come under scrutiny and potential cancellation if their support for current policy objectives cannot be sufficiently well articulated. This leads to constant cyclical skirmishes between competing interests over finite resources for inclusion in the budget.

D. COMPETITION AND RELATIONSHIPS

It is generally accepted that all relevant first order stakeholders want the DoD to spend more money on the acquisition of new programs because individual constituencies often represent the key beneficiaries of new programs that mean new jobs and increased revenue for the defense industry. And, quite

⁵ Jones and McCaffery, 2008, 529.

frankly, the DoD wants as much money as it can get to meet the current threat and develop realistic programs that support the future war fighter. This of course is the rub; since Congress dictates, what money will be spent and where, the DoD never gets all it is asking for in some areas and more than it wants, or is ready for, in others.

The one salient reason why the acquisition process, in relation to money, tends to increase over time is that no one has a grip on how much funding is actually needed in the long term for any given program. Part of the issue relates to acquisition objectives – the number of assets required to meet a capability requirement – and the other relates to the maturity of technology associated with the program in question. As acquisition objectives shift downward in response to restrictive budgetary pressures, the per-item cost for each unit procured rises to cover fixed development costs that were previously spread over greater numbers. This fact often obscures any savings gained by reducing the procurement targets for a particular asset over time since the added cost of the remaining assets must carry the full cost of development regardless of the numbers produced. Technological immaturity leads to exponential development cost increases since gaining approval at milestones ensures in the short-term that development continues without a guarantee of success in the long-term. This leads inevitably to “throwing good money after bad.”

E. POLICIES AT ODDS

The acquisition process, by law, is supposed to be milestone driven.⁶ Unfortunately, the cyclical nature of the Congressional Defense Appropriation process forces the acquisition process for purposes of funding to follow a time-phased process whereby decisions are made prematurely on limited information and biased estimates based on immature technology.

⁶ DoD 5000.

Another factor that plays into an inefficient budget is the long-range projection of its acquisition base. President Bush feels that FY2003 to FY2009 and out-year defense acquisition spending plans would help the defense industry by providing concrete expenditures over a period of time. What this has done however is draw concern from the defense industry in how that acquisition process is going to help. For example, former Assistant Secretary of the Navy John Douglass, President of the Aerospace Industries Association, stated; "You can't maintain a defense base on five ships a year."⁷ Douglas and other defense representatives have made a series of distress calls on the issue, not only for their industry, but for the nation as well. They submit that the United States needs a strong defense industry, which is prepared and ready to produce. They also cited the reduced number of defense contractors, makers of major platforms, as a cause for concern.

This lack of in house procurement could eventually hurt the U.S. strategic posture but is it the responsibility of the DoD to make sure the defense industry is thriving? Vice President Dick Chaney as the former Secretary of Defense stated that it is not the responsibility of the DoD to maintain the defense industrial base. While true, the lack of a sound industrial base with adequate competition hurts DoD by raising acquisition costs for individual programs, reduces innovation in production efficiencies, and renders rapid build up in time of crisis difficult or impossible.

The DoD budget and how it relates to the acquisition process is fast becoming a serious issue. Many Congressmen, especially those with constituencies that are affected by this lack of procurement, have been speaking out on how the DoD is not spending enough and that the rapidly aging fleet of ships, subs, and aircraft will soon become obsolete.

In an effort to try to fix the budget and save money, many proposals and policies have been debated and implemented to generate savings, i.e. the Base

⁷ Jones and McCafferey, 2008, 530.

Realignment And Closure (BRAC) initiative. BRAC was introduced to streamline and reduce the infrastructure of DoD in hopes of reducing overhead costs to allow capitalization of the modernization of aging weapons systems as a result of the expected cost savings. This in fact has not happened, primarily because achieving any significant cost savings in the long term requires an up-front investment, which means more money tied up in infrastructure. This up-front investment could have been used for high priority programs; instead it is being used for base closings and the elimination of military/civilian jobs because of the way DoD is mandated to spend its money through annual defense appropriation language.

F. SUMMARY

All of the above often results in the DoD re-sequencing its spending timelines or reducing the planned acquisition objectives in successive Future Years Defense Plan's (FYDP) and reprogramming other acquisitions to the years beyond the FYDP. What does this mean? The tough decisions and trade-offs that have been made now to fix the budget have pushed the major funding issues faced by the current administration and DoD to the future. This future spending will actually be higher because of cost creep, inflationary pressures, and further deterioration of weapons systems that are facing higher than anticipated usage rates and dramatically reduced lifecycles. This inevitable increase in requirements will necessitate a significantly larger investment in the future to pay for it.

What it looks like now is that the cuts being made in today's FYDP will never come back, particularly when taken in context of the continuing budget deficit and other major federal budget concerns with regard to entitlement spending. How can the DoD acquisition program, the defense industry and military readiness be improved? Could a change in tactics concerning our acquisition process, specifically leasing, be a part of the answer?⁸

⁸ Jones and McCaffery, 2008, 53.

IV. WHAT IS LEASING AND PURCHASING?

A. INTRODUCTION

This chapter will briefly describe the two alternatives available in the acquisition process, leasing and purchasing. It will then go into a very basic synopsis of each of these processes beginning with purchasing. It will then briefly discuss some reasons why purchasing has historically been so popular and the method of choice in defense acquisition. It will also discuss leasing and some questions that should be asked when deciding whether to lease or purchase.

B. DISCUSSION AND BACKGROUND

In the acquisition process there are two basic ways contractors fulfill program requirements or supply equipment the DoD needs, through leasing and purchasing. It is in this area, between leasing and purchasing, that the DoD acquisition process needs improvement, both in how quickly a need is fulfilled through the acquisition process and how that acquisition is funded. The DoD is mandated to buy American and, unless exigent circumstances prevent the use of U.S. based companies, DoD generally complies with this mandate. The DoD typically buys assets through the full acquisition process governed by Congressional oversight to fulfill its needs from contractors because traditional minds like to own what they are paying for. However, history has shown that in some circumstances it may be more beneficial to lease equipment because of the cost of recapitalization and the ability to minimize up front costs with a lease arrangement that spreads acquisition costs over the useful life of the asset. Also, leasing places significantly more pressure on businesses to complete systems on-time, within budget thus allowing the DoD to have better control and flexibility over its budget. What is the difference between buying and leasing?

C. PURCHASING

The first, and most commonly used practice, is the full up-front purchase of equipment. Which, like it sounds, is tantamount to any commercial purchase in that ownership of an asset is transferred to the government upon payment. The government often funds research and development for uniquely governmental assets that either have no commercial market or assets available in the commercial market are not suitable for military use. This procurement process often involves billions of dollars, consumes many years of effort and attention, and frequently amounts to nothing in the end due to budget cuts. The process always begins with a need. Once a need is identified by the military, a call goes to the contracting office to begin a search for a contractor. A contracting officer gets a consolidated list of requirements from the DoD and he then goes out and takes bids on what they are looking for from different contractors. An extremely important part of both lease and purchase options is the list of requirements that are sent out to potential contractors. This list needs to be as accurate as possible with limited opportunity to make fact of life changes because this will allow for not only a better product, but also a more accurate and dependable budget in relation to that particular program. Once this list is distributed and a determination is made as to which of the bidding contractors to go with, a contract is then let. Often contracts are separated into phases starting with research and development followed by production, delivery, and maintenance.

1. Contracting Flaws

When DoD contracts to purchase equipment, the contract usually goes to the least cost bidder; however, that is not always the best case because sometimes there are few bidders. Consolidation in the defense industrial base has resulted in industries where only one or two companies compete for defense contracts, which limits the selection process. If a contractor cannot provide exactly what DoD is looking for, but can provide something similar at a very

cheap price, sometimes DoD will take the cheaper one and make due. What the DoD has realized is that this is a flawed way of thinking because in the long run the DoD ends up spending infinitely more money trying to resolve the problems they initially agreed to leave out. Also, when DoD buys its equipment, a significant amount of money is required up front to cover all of the Research Development Testing and Evaluation (RDT&E) for the program to the contractor just to start the development, which is money that has no immediate return. This process leads to cost overruns prior to production because these contractors usually take on more than they can handle and require additional capital downstream to meet their deadlines. This is another flaw in the acquisition process that has been shown historically through many problem programs and their funding. What generally happens is that this RDT&E money is paid up front to the contractors and then, inevitably, something happens, (added requirement inputs, technological limitations, reduced numbers of end units, etc...), and more costs are incurred that exceed the budgeted amount. DoD is then forced, if it wishes to keep the program alive, to reprogram funds from other lower priority programs or go back to Congress and ask for more money. This is an extremely simplified model of the acquisition process, but for this case it is all that is needed.

What purchasing has amounted to, for many capital asset acquisition programs, is a flawed acquisition process that has done nothing but force the DoD to review, renew, and reprogram repeatedly. However, one must remember that this is, and has been, the way of doing business for years – even with all the acquisition reform. For an extended period of time, the United States has known what needed to be bought because enemies and their capabilities were well understood. DoD knew where the things that were bought would be used, how long they would be needed, for what purpose, in what operating environment, and what personnel skills would be required to use and maintain them. The

situation was very clear and accepted by almost everyone.⁹ It is because of this that buying was not a concern and the availability of money to support it was and is a critical but not an entirely uncertain factor in obtaining assets. The key variable appears to have been whether the President as Commander-in-Chief has proposed and supported plans and appropriations for DoD acquisition. While Congress always formulates its own budget, generally since World War II, Congress has followed the President's lead in funding defense acquisition through purchase of assets. A mindset of stocking up on equipment, personnel, and other supporting services is well defined and highly present in the DoD acquisition process and culture. However, with our nation's ever changing security needs and the globalization and threat that has emerged from selected third world countries, leasing and purchasing should be looked at more closely to evaluate whether and when it is the most cost-effective option.

2. The Need for Competition

With the above in mind, purchasing has proven to be more process than product.¹⁰ This process forces contractors to compete against each other to provide the best price that creates nothing but a starting point from which the contractors tabulate the final bill. The contractors know that if they win the bid they can and will raise the price with the full knowledge that the DoD will not cancel the contract because if they do it will affect the troops, something they don't want to try and defend. It is common knowledge that very few programs actually get cancelled, just reprogrammed to meet monetary demands.

Additionally, when developing new weapons systems, when prototypes are required, and when fact of life changes to meet ever increasing technological advances are added to requirements the timelines consistently get pushed back and delivery dates are often not met as advertised. The acquisition process has

⁹ Value, Cost, Obsolescence Contract for Change, Challenges Ahead: Michael L. Tompkins, DAU website, 2.

¹⁰ Jones and McCaffery, 2008, 650 - 651.

had many reforms and policy changes over the last half century all of which were intended to smooth the process to allow for quicker delivery of important and sorely needed equipment. This, in fact, has not been the case; the same old bureaucratic machine with its complex, ill-defined political process still exists. In other words, too many government officials believe they know what is best for the military based on what their district or state needs. Combine that with the fact that each administration gives different guidance to the DoD and the result is confusion and budgetary problems. Leasing is an option that could in some circumstances help smooth out the peaks and valleys in today's ever changing defense acquisition environment by improving the budget and acquisition processes, shortening fielding times, and generating cost savings by spending less to gain more.

D. LEASING

The basic definition of a lease conveys part of an asset (such as part of a building) from one party (the leaser) to another party (the lessee) for a specified period in return for rent or other compensation. There are two basic types of leases dependant on the type of contract, operation leases and capital leases.

1. Operating Leases

Operation leases, or true leases, do not involve the lessee obtaining ownership of the equipment that it is leasing. The vendor or owner retains ownership of the equipment and the lessee obtains the use of the technology for a specified amount of time. An operating lease for the government must also meet a set of standards set by a Government Accounting Standards Board. If these requirements are not met, the lease is considered a lease-purchase and the equipment must be capitalized. Also, an operating lease gets its money from the Operations & Maintenance (O&M) fund, which is a different pot of money then the capital lease.

2. Capital Leases

Lease-purchase or capital leases are the second type of leasing. This type of leasing is an agreement that spreads the terms of the payment for the equipment over an extended period of time. At the end of this payment period and in accordance with the lease agreement, the purchaser or lessee obtains title to the equipment by purchasing the equipment outright. What this type of lease has done, is allow the purchaser to spread out a significant amount of the cost of the equipment over its useful life. Also, low interest rates can and usually are charged to these leases if they are large in nature. Lastly, the funds that it receives are from the actual procurement process, so it is monitored with more scrutiny.

3. Some Questions that Should be Asked when Deciding to Lease or Buy

Now that the two basic types of leases have been defined, some additional considerations related to leasing may be assessed. When considering a lease decision makers have to ask whether to purchase the equipment at the conclusion of the lease. This is a case-by-case evaluation of comparative costs and other factors and must be taken seriously to be effective. The factors to be considered are as follows:

- 1) Length of equipment lease and extent of use
- 2) Financial & operational advantages of alternative types/makes of equipment.
- 3) Cumulative rental payments for estimated period of use.
- 4) Net purchase price.
- 5) Transportation and installation costs.
- 6) Maintenance and other service costs.
- 7) Potential obsolescence of equipment because of imminent technological improvements. ¹¹

¹¹ Morgan, 2005, 4.

All of the above issues are the main factors when considering whether to lease or buy. There are also some additional factors that should be considered depending on the type, cost, complexity, and estimated period of use of the equipment:

- 1) Availability of purchase options.
- 2) Potential use by other agencies after it use by the acquiring agency is ended.
- 3) Disposition costs.
- 4) Trade-in or salvage value.
- 5) Availability of servicing especially for highly complex equipment; e.g. can the equipment be serviced by the government or other sources if it is purchased?
- 6) Imputed Interest (Assumed or estimated interest when the actual interest amount is unknown/not stated). ¹²

Looking at all these factors can be daunting, but these factors are there to ensure that if the government chooses to lease, that the decision was made fairly, with integrity, and with the best interest of the DoD and its personnel in mind. Typical leases that the DoD has used and continues to use now are those for copiers, printers, fax machines, and IT (Information Technology) type items. The basic rule of thumb used by the DoD now is that the purchase method is appropriate if the equipment will be used beyond the point in time when the cumulative leasing costs exceed the purchase costs. An example of this, buying IT equipment and its cumulative payments versus purchasing the equipment, as shown in enclosure (1) ¹³ will help in defining the leasing exceeding buying concept. This small-scale example can be extended and applied in the context of larger real-world capitalization plans.

¹² Morgan, 2005, 5.

¹³ Morgan, 2005, 7.

It may be seen that leasing this equipment generates a \$45,000 cost savings in the first month. This savings can be used for other investments or higher priority programs. After a year, leasing costs begin to overtake the initial purchase price further muddying the waters. What must be kept in mind with something like IT is that in IT, constant turnover is required to remain competitive and up to date so that the initial investment of \$50,000 is probably unrealistic. IT further requires technical support and creates other problems that usually occur with IT type items. When the choice falls to the lease option the wording of the contract must allow for this updating as well as the technical support because the owners/lessor will not allow the system to be operated without professional servicing. These items are typically not included in the buy option unless it is specifically stated in the contract. However, it should be stated that agencies should not rule out the purchase method of equipment acquisition in favor of leasing merely because of the possibility that future technological advances might make the selected equipment less desirable, even though this is essential in today's quickly changing threat environment.

E. SUMMARY

In summary, the lease, purchase decision is an important one that must be made after exhaustive research and a thorough understanding of the pros and cons of each option. Because DoD has such significant experience with financing acquisition through the full up-front purchase, the age-old saying of "that is how we have always done it" is germane. Now this was not a bad way of doing business 20 years ago with a strong economy and a known enemy. These circumstances made purchasing in bulk the way to go to secure our future as well as our allies. Specifically for purchasing, it is appropriate if the equipment will be used beyond the point in time when cumulative leasing costs exceed the purchase costs, assuming that the complete purchasing costs to include upgrades and maintenance over the life of the purchase are known. Leasing on the other hand is relatively new and because it is new it does not have the

support of most government officials who still see the need for actually owning the equipment. Leasing has many benefits that should be looked at and considered. Specifically, because of today's changing threats and the need for a more reactive military because of globalization of third world countries, leasing could be more beneficial for a lot of programs. Leasing should be done when it is to the advantage of the government, primarily if equipment is required immediately to meet program goals that are not supported by purchasing equipment. Also, leasing could allow for reduced overhead and operating expenses as well as reducing the need for long-term storage because of the responsibility of the manufacturer/owner for disposal. If leasing is the choice selected, then a lease with the option to purchase is preferable. This preference for lease-option terms resonates because long-term leases without this option generally result in costs that typically exceed that of purchasing. If the lease-purchase option is used, then the contract must state the purchase price or provide a formula from which the purchase price will be derived if the lessee chooses to execute the option.¹⁴

In short, as long as DoD continues on the path of business-as-usual, using the same old acquisition system of organic ownership preferred over contracted service and leasing, it runs the risk of tying up national resources in unneeded assets. After years of waging the Cold War, regulations, organizational structures, training, and the methods of acquisition and decision-making are clearly in favor of doing business in the same old way. This must change for the process to become better and our military to stay relevant and effective.¹⁵

¹⁴ Morgan, 2005, 15.

¹⁵ Value, Cost, Obsolescence Contract for Change, Challenges Ahead: Michael L. Tompkins, DAU website, 7.

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V. ADVANTAGES AND DISADVANTAGES OF LEASING AND PURCHASING

A. INTRODUCTION

This chapter introduces some of the advantages and disadvantages of both leasing and purchasing. It is not collectively exhaustive in its discussion of advantages and disadvantages, but treats only those that are relevant to this topic. There are certainly more disadvantages that could be attributed to either leasing or purchasing, but these are not looked at specifically in this section. It is the evaluation of leasing as a whole based on politics and time that provides the basis for discussion because, from the perspective of this research project, these are the critical factors.

B. DISCUSSION AND BACKGROUND

The previous chapter presented a short comparison of leasing versus purchasing equipment in terms of its relevance to defense acquisition. There are many factors involved in determining whether the lease or purchase option is more advantageous to the government. The discussion here begins with some specific instances of advantages and disadvantages to leasing and purchasing that have been realized over the last few years. There are probably many more advantages and disadvantages plainly visible to the casual observer that are dependant on the specifics of individual opinion and how various contracts were written. The decision over whether to purchase, lease or lease-purchase must be made according to DoD assumptions regarding how the asset will be used and for how long. Advantages and disadvantages should be weighed against all other factors being assessed according to established priorities after determining which are most important to the DoD.

Three items that form the basis of any discussion regarding the lease purchase decision are the utility value, investment cost, and period before obsolescence. This system of measurement has been around for some time and though it has been used, some might say that it is not used enough or given enough weight. The following is a more in-depth discussion of each measurement element with some associate questions that guide an official when deciding whether to buy or lease.

Utility Value:

How useful is the total system including its equipment, facilities and people? Does it have many other applications, or is its value limited to narrow parameters requiring specific threats or operational applications and environments? What about the equipment needed to field it? Can any of it be used or modified to support other systems, thereby increasing their own utility value? What about the utility value of the people required for operation and maintenance. Aren't they and their training a part of this system's acquisition?¹⁶

Investment Cost:

Is the system expensive, in real terms, considering its total cost including its people and their training? If a new building must be built to house the new system and its people, isn't the cost of that building part of the system's cost, too? What about the investment in repair parts, their handling and repair and storage equipment to stock them, and all the other related expenses involved in the system's acquisition, including new transportation vehicles and security requirements?¹⁷

Period before Obsolescence:

What if it is likely that a smaller, simpler and more portable system will come along at a lower cost to buy and operate? After all, we

¹⁶ Value, Cost, Obsolescence Contract for Change, Challenges Ahead: Michael L. Tompkins, DAU website, 3.

¹⁷ Value, Cost, Obsolescence Contract for Change, Challenges Ahead: Michael L. Tompkins, DAU website, 3.

are talking about a relatively new and changing technology in almost every aspect of today's military.¹⁸

With these measurements and basic questions, the analysis of the decision begins. After determining the value of each system relative to the utility value, investment cost, and period before obsolescence the comparison of specific advantages and disadvantages of buying to leasing become apparent.

C. PURCHASING ADVANTAGES AND DISADVANTAGES

Our nation's posture over the last 40 plus years of defense acquisition has focused on fighting large land or sea battles with great-state actors. Equipping the force according to this focus has led to a procurement process resulting in mountains of equipment. Within the process there is a system in place that has worked well, albeit slowly and often unresponsive to real-world changes, the full up-front purchase of facilities and equipment. In addition, because of this focus on the full up-front purchase of facilities and equipment, complex management systems have evolved to enable oversight of these large programs. Another reason purchasing enjoys its "king-of-the-hill" status is that when assets are purchased, the complexities involved with managing lease agreements over time and the inevitable discourse regarding who has responsibility for what are negated. The final and major advantage for full up-front procurement is that once purchased, the equipment may be kept in service for as long as it is needed. The equipment belongs to the government and the government can do with it as it wills. That means modifications, changing roles, and adapting equipment to suite evolving purposes without looking for permission from the owner/lessor.

The principal disadvantages to purchasing hinge on the fact that ownership and risk are transferred completely to the government upon receipt of funds. The first disadvantage to purchasing is that it hinders the DoD's ability to take advantage of technological advances as they occur. Technology today is

¹⁸ Value, Cost, Obsolescence Contract for Change, Challenges Ahead: Michael L. Tompkins, DAU website, 3.

changing at an exponential pace so fast, in fact, that by the time a purchase decision is made, the technology supporting that decision is often already obsolete. If DoD purchases some new state of the art equipment, the odds of it being state of the art in a year are slim to none even when that equipment was developed specifically for the DoD according to military specifications. In the ever changing threat environment faced by today's military, the requirement to stay ahead of those who would do us harm is undeniable. Without the flexibility to quickly update our equipment, the enemy, whoever they might be, could find gaps in our ability to protect ourselves.

Second, because ownership and risk are passed wholly to the government at transfer, purchasing ties the hands of DoD when it comes to meeting emerging technology. This goes back to the technology factor and the fact that as technology evolves, adapting older systems to interface with more modern systems requires expensive upgrades or results in additional purchases prior to the end of the expected life of the equipment in question. Essentially, if that equipment does indeed become out of date or obsolete, then the government is stuck with costly upgrades or outright replacement.

This leads to the third disadvantage; purchasing equipment passes the cost of disposal to the government as well as the risk and ownership of that now obsolete equipment. The government must pay whether it decides to keep this equipment stored for some future contingency, maintains it in service in spite of its obsolescence, or disposes of it in accordance with environmental regulations. In some cases this obsolete equipment can be sold to foreign governments, but foreign military sales is no overnight evolution. It involves many levels of bureaucracy, political connections, and often a high degree of congressional oversight. Once the decision to sell or dispose has been made, which can take years, the cost for storing and maintaining the equipment is a significant portion of the life-cycle cost of that equipment. This money could have been used for

other programs or recapitalization of current equipment. Leasing, on the other hand, would have provided the government with an option, just give it back at the end of the term.

Another disadvantage to the full up-front purchase is its effect on the budget itself. The defense budget is severely affected by purchase delays associated with the procurement process. As delays mount, so does the cost of the program being funded. Furthermore, because of capital-intensive expenditures associated with increasing the life-cycle of obsolete equipment the program is expected to replace the delays produce a cumulative effect that can not be overstated. As an example, consider the CH-46 medium lift helicopter in the Marine Corps. For years the Marine Corps sought to replace the aging CH-46 with the V-22 Osprey, a tilt-rotor aircraft that better supports its doctrine of operational maneuver from the sea. But because of delays in the procurement process related to system design and development for the V-22, the service life of the CH-46 was extended numerous times forcing the Marine Corps to upgrade the avionics, engines, rotors, transmission and more. All of this at tremendous cost to support the changing threat environment and lengthen again the already exceeded life-cycle. This service life extension was not programmed in previous DoD budgets nor was it accounted for in the life-cycle costs when the CH-46 was originally procured. In effect, this lack of foresight and initiative has taken money from numerous other programs to further fund the CH-46 and ensure that its life-cycle is extended to support the new time table of the V-22.¹⁹

The final potential issue germane to this discussion relates to the availability of funds for defense programs. The constricting effect of non-discretionary entitlement spending in the federal budget and the size of the budget deficit and total national debt directly affect the defense budget. It is the largest and most visible portion of discretionary spending and the easiest to target. Because of the current economic situation, defense planners, political

¹⁹ DIR, 1998, 10.

pundits, and congressional leaders all expect that the defense budget must contract to meet fact-of-life realities. If this is in fact the case, the military will be left with less budget authority every year to support its activities including acquisition programs as well as operations and support of existing hardware. The full up-front purchase of goods and equipment to outfit the force may have to be reevaluated because of the shortage of available funds. Anticipating these issues, along with working on alternative ways of funding our military and its acquisition process is paramount to maintaining a strong defense.

D. LEASING ADVANTAGES AND DISADVANTAGES

There are two types of lease programs that bear discussion; the true lease and the lease-purchase. A true lease, or operating lease, has no provision for the eventual transfer of the property from the lessor to the lessee. A true lease has some distinct advantages. First, systematic technology replacement of the leased equipment allows the user to remain at the forefront of technology. Commercial entities, universities, or other government agencies that lease equipment to the government have an established life cycle associated with the equipment that they provide. When that life cycle is exceeded, new equipment replaces old. This advantage is only realized on items with a short technological lifespan, any large item such as the V-22 would not be subject to this advantage. A disadvantage to this replacement in kind system is the burden of keeping track of the equipment. The contractual management of lease agreements is often cited as a contributing factor to the government's reliance on the full up-front purchase of equipment. It is a commonly held belief that dealing with vendors from a fleet unit is nearly impossible but there is no supporting evidence to support this claim. There is a system in place to get things done when trying to deal directly with a vendor and from experience this process is extremely painful and slow but not insurmountable. For DoD, maintaining accountability of thousands of units can be a troublesome task, specifically since each unit is not the true owner and a system must be in place to identify where each piece of

equipment is.²⁰ There needs to be a better system in place for dealing with vendors to correct issues as they arrive to enable the DoD and its users to be more responsive to meet demands.

The second advantage to leasing is that it levels expenditures in relation to the budget in the shorter-term and reduces spikes due to unforeseen costs related to purchase contracts. Unlike full up-front purchases where large expenditures in particular fiscal years create spikes in spending, leases are considered operating expenses and therefore spread costs over time. By reducing the upfront cost of new programs through leasing, DoD can generate substantial cost savings over time. Savings that result from reducing procurement delays due to requirements creep, fielding higher quantities to spread research and development costs over greater numbers, and placing cost schedule and performance risk on the contractor. The primary disadvantage to this is committing to a multi-year contract with one vendor and one technology. This could potentially limit the DoD's ability to deploy in response to emerging threats due to legislative mandates, federal requirements, or other unforeseen challenges. DoD cannot become a slave to one vendor and its technology.

The third advantage to leasing is the level of standardization that is established. A good leasing contract can help the DoD standardize across programs or platforms, such as the JSF (Joint Strike Fighter). This resultant savings in staff labor and maintenance costs, as well as improving the operating efficiency of the program speaks volumes about the potential cost benefits associated with leasing. Also, maintenance costs will be lowered universally due to standardization and the use of new equipment rather than outdated, outlived, and unfunded legacy equipment. The disadvantage to this is that changes and modifications must be limited because changes place additional burdens on the contract, which in turn will add to the cost of the lease.

²⁰ DIR, 1998, 11.

One of the biggest advantages is streamlined equipment disposal. With leased equipment, the owner or vendor assumes the responsibility of disposing of the equipment. In DoD's case this frees up such things as "bone yards" - areas where outdated equipment just sits and wastes away. By getting rid of these areas, nothing but land used solely for storage, will free up the equipment and personnel assigned to guard and maintain them. A service performed by contracted or military personnel, which in either case takes money, personnel, or both away from activities where they could be put to better use. Not only is this old equipment just sitting, not adding any value to the DoD, but the acres of land it is sitting on is wasting away as well. This land could be used to expand our ever-shrinking training areas, or sold as offsets to help reduce base costs that support these areas. The disadvantage to this lies in the industry life cycle of that equipment.

DoD will have to be proactive in replacing leased equipment because of its reduced life-cycle. Most equipment has a specific life cycle and by allowing the vendors to dictate the length of use, DoD is giving them control of when and how our equipment is utilized. The DoD will have to ensure that every program that is leased is monitored to ensure that a replacement is in fact ready and in line for transition. Failure to comply with industry life-cycle measurements will result in additional costs, which reduces the beneficial aspects of the lease arrangement. Therefore, a very strict, proactive monitoring process to govern leases will have to be implemented in order for them to be effective.²¹

E. SUMMARY

In summary, the lease-purchase option is preferable to an operating lease in specified circumstances based on the availability of equipment at lease termination outweighing the benefit of the ability to cut disposal costs. Environmental protection policies in effect at the time of disposal may increase these disposal costs such that, depending on what equipment is leased, disposal

²¹ DIR, 1998, 11.

costs may change the balance of the accrued benefit. Leasing does have the ability to spread payments over time as an added advantage, again providing a cost and budgetary advantage over full up-front purchasing.

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VI. RULES AND RESTRICTIONS FOR LEASING

A. INTRODUCTION

This chapter introduces some of the more important laws and policies in place to guide the leasing process. Specifically it will cover directives from such documents and publications as the FAR 7.4 “Equipment Lease or Purchase”, DFARRS 207.4 “Equipment Lease or Purchase” and the FMR 7000.14-R “Volume 4, to name a few. It will also provide an analysis of these restrictions and what the government expects to see when trying to choose the leasing option.

It will also discuss cost-benefit analysis in relation to leasing and purchasing. This chapter will not go into how to do a cost-benefit analysis or the process that goes along with leasing and purchasing. This section is brief because of the numerous calculations and time-consuming nature of cost-benefit analysis.

B. DISCUSSION AND BACKGROUND

When the DoD does decide to lease its equipment there are actually a lot of restrictions that are applied to the leasing option. This is to ensure that nobody gets a raw deal and all business is done with all parties involved. There are many governing directives and some are as follows, FAR 7.4 “Equipment Lease or Purchase”, DFARRS 207.4 “Equipment Lease or Purchase”, FMR 7000.14-R “Volume 4, Chapter 7, Section 070207”, DODI 7041.3 “Economic Analysis for Decision Making”, and finally the Circular A-94 “Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs.”

Previous chapters have covered a few of the restrictions and leasing guidelines. What follows is a brief discussion of the cost-effectiveness guidelines to be used when conducting lease-purchase analyses, specifically the guidelines

established in OMB Circular A-94. This brief discussion will not go through the circular line-by-line, as that is outside the scope of this thesis, and will only cover that which is relevant.

C. GUIDELINES FOR CONDUCTING THE ANALYSIS

When deciding between leasing and purchasing, the government has a strict set of guidelines for conducting the analysis as presented in the previous section. It says:

Analysis of nominal lease payments should use the nominal Treasury borrowing rate on marketable securities of comparable maturity to the period of analysis. Nominal Treasury borrowing rates should be taken from the economic assumptions for the budget. A table of these discount assumptions is presented in Appendix C of this Circular, which is updated annually. (Constant dollar lease-purchase analysis should use the real Treasury borrowing rate, described in the preceding paragraph.) (Circular, 9).

Essentially, this circular is telling those agencies who are looking to lease how to accurately do their cost analysis and what rates to use when figuring the different costs incurred with that lease.

In this circular there is also special guidance for lease-purchasing analysis and whether or not this circular's guidance is germane to the decision. The first question to be asked by the analyst is whether or not this circular applies to the lease analysis. The following questions, if answered yes, would make this circular's guidance applicable (Circular, 12):

- If the lease-purchase concerns a capital asset (Building, equipment, facilities, installations, or land):
- Is leased to the Federal Government for a term of three or more years; or,
- Is new, with an economic life of less than three years, and leased to the Federal Government for a term of 75 percent or more of the economic life of the asset; or,
- Is built for the express purpose of being leased to the Federal Government; or,

- Is leased to the Federal Government and clearly has no alternative commercial use (e.g., a special purpose government installation).
- The lease-purchase analysis concerns a capital asset or a group of related assets whose total fair market value exceeds \$1 million.

If the government decides to lease, there is specific justification required for that lease if that lease involves a capital asset. This justification is provided in one of the following three ways:

- Conduct a separate lease-purchase analysis, which is the only acceptable method for major acquisitions.
- Conduct periodic lease-purchase analysis of recurrent decisions to lease similar assets used for the same general purpose. This applies to the entire class of assets. OMB approval should be sought.
- Adopt a formal policy for smaller leases and submit that policy to the OMB for approval. Following this policy should result in the same lease-purchase decision, which would improve efficiency of the process.

What all these have in common is that the government wants to see that substantial savings can be realized when leasing versus purchasing.

D. ANALYTICAL REQUIREMENTS AND DEFINITIONS

The final restriction placed on the lease-purchase option is the analytical requirements and definitions. Whenever the DoD is seeking to acquire a capital asset, it should do so in a way that is least expensive to the government in life-cycle cost, economic life, and purchase price. The first, life-cycle cost should compare the net discounted present value of leasing to the full costs of purchasing that identical asset. These costs with purchasing include the purchase price plus any other ancillary service costs over the expected life of the asset discounted back to the present value. Economic life has to be reviewed also when analyzing the lease-purchase option. The economic life of the asset is the remaining or productive lifetime of that asset. This life begins when the asset is acquired and ends when the asset is retired from service.

The last and probably the most important analysis that the government wants to see is the savings in the purchase price. The circular says: "The purchase price of the asset for purposes of lease-purchase analysis is its fair market value, defined as the price a willing buyer could reasonably expect to pay a willing seller in a competitive market to acquire the asset."²² What this is saying is that the final purchase price for that asset may include other things that have to be added or subtracted to that price to ensure that the purchase price of the asset is not understated. As an example, if the asset in question were to be placed on public land, then the value of that land in the purchase price must be included to be equitable.

E. COST-BENEFIT

It is hard to know what for sure can be quantified when doing a cost-benefit analysis, particularly when trying to quantify something that has no dollars associated with it. This is why a cost-benefit analysis can take on several forms, but the analyst should always try to consider all of the elements involved in the life cycle of the program. An in depth cost-benefit analysis will ensure that the best choice becomes apparent while identifying all of the associated costs.

A cost-benefit analysis between leasing and purchasing contains a set of common items that should be quantified when making a comparison. Enclosure (2) shows those items that, at a minimum, should be included when conducting a cost-benefit analysis. It is up to the individual analyst to include items not on this list but deemed necessary for the comparison by virtue of experience or instruction. However, it should be noted that for a cost-benefit analysis to work, and savings realized, it must be done as accurately as possible with respect to reflecting unquantifiable benefits as costs.

²² Circular, 14.

F. SUMMARY

As explained, these restrictions are there to ensure that the acquisition process performs fairly and that a thorough cost-benefit analysis is done as accurately as possible. In the circular there are a number of other items that need to be addressed as well, taxes and ancillary services. These are just as important and should be incorporated into a cost analysis to ensure everything is accounted for. If all done properly then no doubt a fair decision will be made when it comes to leasing versus purchasing. Combine these restrictions with the cost-benefit aspect and the result is a lengthy and very complex process that has to be done correctly. Bottom line, the decision whether to lease or purchase rests with those individuals making the money decisions based on the needs of their agency. Cost savings from a true lease standpoint will not be realized from a simple comparison of prices between equipment. The savings and efficiencies come from the improvements that will be realized during the life of the equipment and this has to be accounted for.²³ This process is in-depth and should be made with all costs (total lifetime costs) in mind to ensure due diligence is accomplished.

²³ DIR, 1998, 14.

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VII. EXAMPLE OF LEASE/PURCHASE DECISION

A. INTRODUCTION

This chapter will give an example of a lease/purchase decision that worked. It will briefly discuss the events that took place in the early 1980s, with respect to the Navy looking to replace and acquire tankers for the Military Sealift Command Program. It will provide a brief background of how and why the Navy chose to lease this program and asset instead of purchasing it. It will also provide a small analysis of why it worked and give supporting information as to why leasing of military equipment could work for all parties involved if done properly.

B. DISCUSSION AND BACKGROUND

In the early 1980s, the Navy was looking to lease or purchase five transport tankers for the Military Sealift Command Program. This program was responsible for transporting fuel for the Department of Defense during peacetime, war and other contingencies if needed. The mission was for a point-to-point delivery of refined petroleum products to DoD users throughout the world. This program is a good example of the lease versus buy option. In 1982, the Navy awarded contracts for the long-term lease of five newly constructed T-5 replacement tankers.

In the early 1980s the Navy was having some financial difficulties and decided to charter or lease, vice buy, the \$65 million T-5 tankers. The charters were for twenty-year terms, expiring between FY 2005 and FY 2006, and contained purchase options for the T-5 tankers at the end. How and why did this lease-option come to be the way to go?

C. BACKGROUND ON MILITARY SEALIFT COMMAND

A little background on how the Military Sealift Command (MSC) functions as a business with respect to the Navy. The MSC uses a yearly budget to predict the maintenance and repair costs of its current T-5 tankers. The operating contractor submits a proposed budget based on the last 30 days of operations, all of which is historical data on costs and planned maintenance the following year. Personnel from the MSC then review this proposed budget and then develop their own estimates. Once this is complete, the contractor then gets into the action and negotiates the final budget through a contract modification. Once this budget is approved, he must submit quarterly reports that separate all transactions for the 24 different maintenance and repair categories. In short, if these costs exceed the budget costs the Navy has planned for the MSC, they are reimbursed that money. If the budgeted costs are higher than the actual costs, the contractor or Navy will credit the MSC. This factors into the leasing process because it is where the Navy will save the majority of its money in leasing versus buying.

D. REASONS FOR LEASING BY THE NAVY

The primary reason for the long-term lease was that available procurement funds were needed for higher priority combat ships and this type of lease allowed it to meet its support requirements without a large upfront obligation of procurement funds. What the Navy assumed was that it could spread its payments over the life of the lease, thereby costing less per year, and then use its annual O&M appropriations to fund them without an up-front obligation. If the Navy had purchased these ships, funds would have been obligated from the Navy's shipbuilding procurement appropriation. Had the Navy chosen that route, then payments would have to be made before delivery and buying would have forced the program to compete for funds with the Navy's other combat ships.

The owner of the ships also received a benefit from leasing vice selling. The specific leasing arrangements for the T-5 replacement tankers allowed the owners of the ship a special tax benefit. This benefit included an accelerated depreciation of the ship's cost and deductions on interest payments that lowered the taxes of the owner. These tax breaks lead to benefits being passed on to the Navy in the form of lower lease payments, which also made leasing a more attractive deal. The down side to these tax benefits was a loss of revenue for the treasury department, which could have been used in other programs.

E. OPPOSITION TO LEASING

The treasury department did not like losing revenue so they, along with the Office of Management and Budget (OMB), issued joint guidelines for DoD leases that specifically talks about special tax benefits conveyed to the ship owner. Basically, if the ship owner received a tax benefit from the lease, then that benefit had to be added to the cost of a lease in a lease versus buy analysis. There was also more guidance from the OMB about lease agreements, specifically, not only should the analysis of the lease versus buy analysis include the tax benefit, but the normal payment of taxes on the lessor's income derived from the leases total lease cost may not be subtracted. Had these guidelines been in place when the lease agreement was signed; the analysis would have said that purchasing, instead of leasing, was the cheaper alternative.

What is the overall affect of leasing versus purchasing? The Navy showed that it was saving money and getting their equipment fielded much sooner. Also, they were not spending a lot of up-front money before actually receiving the ships, this saved money in the budget for other things. Specifically, the Navy showed that if they buy the ships with the purchase clause at 20 years, FY 2003, the would save \$479 million over the FY 2003 to FY 2015 as compared to buying or continue leasing after 20 years.

F. SUMMARY

The tanker is a prime example of a solution that worked for the Navy in the early 1980s. They proved that they could save their budget and their service money and divert much needed attention to other programs by still providing the Navy with its much needed support ships. However, the Treasury Department did not like the fact that they were losing revenue and choose to pursue this issue. They were able to put in legislation language and restrictions that has made leasing an unattractive offer to DoD. This is a good example of the government getting involved in situations that required nothing of them. It not only hurt the DoD in future endeavors, but this is the beginning of the down turn in the United States defense industrial base. Placing more restrictions on leasing began to rule out those companies that were new to the defense industry and did not have the capital to compete for large contracts. The DoD, for the first time, began to see consolidation as a limiting factor in defense acquisition, because it seemed that no other firm or combination of firms could afford to compete with Boeing. However, as demonstrated recently with the DoD and congressional debate over future tanker acquisition, other firms can compete for this type of defense business.

VIII. CONCLUSIONS

A. INTRODUCTION

This thesis provides a detailed analysis of leasing as a viable option to purchasing for DoD asset acquisition. It has reviewed how the budget has affected the acquisitions process, what buying and leasing is in the acquisition process, the advantages and disadvantages of leasing versus purchasing, and the requirement to conduct a thorough cost-benefit analysis in determining which to use. It has also gone into some of the main rules with regard to cost-benefit analysis in the A-94 and provided an example of a lease that worked and saved money before these rules were put in place.

This thesis does not conclude with any definite recommendations. What it does attempt to do is show that leasing is and can be a viable option if done properly. It is hoped that this analysis will contribute to greater awareness throughout the acquisition world and military leadership that leasing should be taken seriously and further studied before placing it aside solely for lack of understanding the leasing process.

B. CONCLUSIONS

The conclusions of this thesis are presented in the context of the research questions posed in Chapter I.

1. Research Questions:

- a. ***To What Extent do Current Financial and Managerial Policies Affect Leasing, and Would Changing these Policies Benefit Both Parties?***

Based on what has been presented, with current financial and managerial policies in place against leasing, leasing is not an option for DoD

when procuring capital assets. These onerous restrictions have made leasing an exceptionally complicated process, a process that most individuals would rather not undertake. The time and knowledge required to perform the actual cost benefit analysis to determine if the lease option would result in a cost savings is such that it precludes consideration in all but the most extreme cases. The tanker lease problem is a prime example of a solution that worked for the Navy in the early 1980s proving that leasing has the potential to conserve finite budget resources and free acquisition funding for higher priority programs.

However, the Treasury Department did not like the loss of revenue. They, and others, were able to persuade Congress and the President to pass legislation that has made leasing far less attractive and viable for DoD. This is a good example of the government involving itself in business decisions that required nothing of them. It has not only hurt the DoD in future acquisition endeavors, but also heralded the beginning of a significant downturn in the robustness of the United States defense industrial base. Placing more restrictions on leasing ruled out those companies that were new to the defense industry and did not have the capital to compete for large contracts. The DoD, for the first time, began to see defense industry consolidation as a limiting factor in defense acquisition, nobody could afford to compete with the Boeing's of the world.

Onerous leasing policies, put in place after the highly visible tanker lease, were inevitable. Politics and the implicit games and trade-offs made in the name of serving one's constituency have a significant impact on the DoD acquisition process. Historically, the United States has relied on a procurement process that favors the full up-front purchase of supplies and equipment to resource defense needs. Leasing has recently gained resurgence among a small minority of observers as an alternative means of acquiring equipment for our military. Individuals who are unfamiliar with and do not like the prospect of change are afraid of what could happen if more leasing was done. Leasing in their view subverts their authority to oversee defense spending and provide

tangible returns to their constituencies. These stakeholders have made leasing an extremely messy and confusing issue when it comes its use to acquire DoD capital assets.

In short, leasing offers significant advantages in situations where commercial markets produce commercial off the shelf assets that meet defense needs with little or no modification, the need is of such an urgency that it precludes the normal procurement process, or funding for critical combat systems removes from consideration support equipment that is necessary but otherwise unaffordable.

b. Are There Any Benefits to Leasing vs. Purchasing?

In certain specific circumstances leasing offers distinct benefits over purchasing. Leasing offers lower up-front procurement costs allowing more critical programs to progress unmolested in the acquisition process. Leasing offers significantly better performance in controlling costs since risk is not completely transferred with the property and vendors/contractors are under greater pressure to meet cost, schedule, and performance goals. Since the government continues to cling to the notion that owning all of its assets is always the best policy, the lease-purchase alternative allows DoD to enjoy the use of an asset as it pays for it over the useful life of the asset and, in accordance with provisions in the lease, to purchase the assets at some future time at a discount. By doing this DoD still maintains the ability to change the asset within the terms of the lease. Otherwise, if previously purchased equipment requires some new upgrade, DoD must go back through the whole acquisition and procurement process of contracting somebody to do the upgrade. The leasing option allows some flexibility with upgrades because the contract and maintenance are often included in the lease. In this case it is a matter of working out the details of effectively completing the upgrade while maintaining combat readiness.

Another major reason why the lease-purchase could be better is the time it takes to field the asset. Typically, when equipment is purchased, payment is made up front to get the program development started. Then as the barriers to success become more concrete, there are delays as technology matures. Had contractors been more forward in their assessment of technological readiness levels they would likely not have bid so low. This has effects downstream as costs are deferred because the contractor knows he will get his money from the government. Under the lease examples researched, the contract generally contained provisions that stipulated that the contractor bears all of the risk until delivery at which time only a portion of the risk is transferred to the government. Essentially, the contractor does not get paid until the asset is delivered and there are significant penalties if the contractor does not deliver on time.

In closing, the lease-buy option is not the perfect answer in all situations. There are significant impediments to leasing as a viable alternative to the full up-front procurement of capital assets as demonstrated numerous times in this thesis. But, leasing does have merits that taken in context allow greater flexibility and allow DoD to more effectively manage finite resources. There is too much evidence in support of the lease-purchase option to consider otherwise.

c. Will Leasing Help the DoD in Controlling their Budget?

Leasing offers many advantages that serve to stabilize cash flows over time. This stability could help the DoD in controlling its budget as explained in Chapter IV. A leveled expenditure, such as leasing in relation to the budget, will help to reduce spikes in capital budgets due to unforeseen costs related to purchasing contracts. Leasing in and of itself is considered an operating expense and as such costs are spread over time. This is in contrast to the large expenditures in particular fiscal years for upgrading hardware due to modernization of outdated and obsolete equipment associated with purchasing. When these upfront and unexpected costs are reduced, the DoD can begin to

realize real cost savings leaving procurement funding for high priority acquisition programs. Of course this is not as simple as it sounds. Monitoring of all leasing contracts will have to be done in perpetuity to ensure accurate reporting is done for budgetary purposes. Lastly, because the lease option avoids much of the need for reprogramming money due to cost and schedule overruns, leasing provides protection from wild swings in programmatic planning, authorization, and spending. By shifting the burden of risk to a more equitable share between government and private sector contractors, a better product can be supplied at a lower cost and the military and the U.S. taxpayer will benefit as a result.

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LIST OF ENCLOSURES

	Lease	Cumulative Payments	Purchase
Months of Usage	\$5,000		\$50,000
1	\$5,000	\$5,000	\$50,000
2	\$5,000	\$10,000	\$50,000
3	\$5,000	\$15,000	\$50,000
4	\$5,000	\$20,000	\$50,000
5	\$5,000	\$25,000	\$50,000
6	\$5,000	\$30,000	\$50,000
7	\$5,000	\$35,000	\$50,000
8	\$5,000	\$40,000	\$50,000
9	\$5,000	\$45,000	\$50,000
10	\$5,000	\$50,000	\$50,000
11	\$5,000	\$55,000	\$50,000
12	\$7,000	\$62,000	\$50,000
		\$62,000	\$50,000

Enclosure (1)

Purchasing	Lease-Purchasing	Leasing
Equipment Price	Payments on equipment	Lease payments
Residual value of equipment	Residual value of equipment	N/A
Maintenance Costs	Maintenance Costs	Maintenance Costs
N/A	N/A	Contracted Maintenance Costs
IT Staff Costs*	IT Staff Costs*	IT Staff Costs*
Agency Staff Costs**	Agency Staff Costs**	Agency Staff Costs**
Disposal Costs	Disposal Costs	Disposal Costs

*IT staff time includes time spent on installation, maintenance, moves/adds/changes, de-installation, and disposal. Costs will vary depending on who is responsible for maintenance in leasing contracts and on estimates of problem-solving efforts for older installed platforms.

**Agency staff time includes non-IT staff time spent on processing purchase orders, tracking leased equipment, dealing with surplus equipment, etc.

Note: In the analysis, it is important to use PV (Present Value) calculations to equalize price comparisons

Enclosure (2)

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